Base Realignment and Closure
Program Management Office West
33000 Nixie Way, Bldg. 50
San Diego, California 92147

CONTRACT NO. N62473-10-D-0809
CTO NO. 0002

FINAL

ADDENDUM TO PARCELS B AND G RADIOLOGICAL REMOVAL ACTION COMPLETION REPORTS

April 2016

ADDENDUM 2 TO:
DCN: ECSD-3211-0018-0179
AND
DCN: ECSD-3211-0018-0182

HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

DCN: RMAC-0809-0002-0112.A2/F

Prepared by:

TETRA TECH EC, INC.

1230 Columbia Street, Suite 750
San Diego, California 92101-8536

Steven Adams, CHP
Radiation Safety Officer

Nathan Smith, CHP
Project Manager

EXECUTIVE SUMMARY

The California Department of Public Health-Environmental Management Branch (CDPH) raised concerns when Tetra Tech EC (TtEC) self-reported deviations from survey protocols, specifically scan speed, bringing the quality of previous radiological survey data generated for buildings within Parcels B and G at Hunters Point Naval Shipyard (HPNS) into question. This Addendum to Parcels B and G Removal Action Completion Report (RACR) (Addendum) was prepared to demonstrate that the radiological final status surveys (FSSs) conducted at buildings in Parcels B and G remain technically defensible and contain an adequate amount of data, of sufficient quality, for the regulatory agencies to support radiological unrestricted release of the buildings.

Radiological surveys are conducted to determine whether radioactivity is present in buildings, and, if present, whether such radioactivity is at concentrations that present an unacceptable risk to human health. The original survey planning documents were written using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)—developed and approved by the Department of Defense, the U.S. Environmental Protection Agency, and the Nuclear Regulatory Commission in 2000—which establishes procedures and formulas for evaluating radiological contamination (DoD et al. 2000). MARSSIM includes measures for statistically determining whether contamination is likely to be present within a survey unit (SU).

TtEC conducted its building surveys to identify residual radiological contamination on building surfaces utilizing three MARSSIM methodologies: 1) performing scan surveys across a specified area, 2) collecting systematic static (unmoving) measurements to identify fixed contamination, and 3) obtaining and analyzing wipe samples to test for removable surface contamination. In cases where radiological contamination was identified above the release criteria, remediation was conducted, and the survey process described above was re-performed in an iterative manner until sufficient data were collected to demonstrate that no contamination remained and each SU met the criteria for radiological unrestricted release.

The scan rate specified in the Task-Specific Plans (TSPs), which describes how scan surveys are to be conducted, was not rigidly controlled to ensure the specified scan rate for the detection of radium-226 (Ra-226) was followed. Although the TSP-specified scan rate may not have always been achieved, the scan portion of the surveys was conducted at scan rates that fully comply with the MARSSIM scan survey process, and demonstrated that the release criterion for Ra-226 had been achieved. Abundant supporting evidence indicates that significant areas of contamination would have been identified even at substantially higher scan rates. The previous techniques and methods used were acceptable for detecting any alpha-emitting contamination at or above the release criteria provided in the Action Memorandum.

After several technical meetings among personnel from the Navy, TtEC, and CDPH, the concerns regarding the scan speed were not resolved to the satisfaction of the CDPH. To provide further confirmation that the release criteria set for the Parcel B and G buildings had been met, the Navy implemented a new round of alpha/beta scan surveys in two buildings. The Navy selected Building

146 from within Parcels B and G because it previously had been surveyed and had been identified as having "likely" or "known" radiological contamination, according to the Historical Radiological Assessment (HRA) report. Building 146 is the only building within Parcel B-1 with this designation. In addition, the Navy selected Building 439 in Parcel G because radiological contamination had been identified in this building and subsequently had been remediated. The surveys in these buildings were intended to validate the previous scan data, and not to replace the FSSs in their entirety. After completing these surveys and providing the results in the Draft Final version of the RACR Addendum, the California Department of Public Health (CDPH) reviewed the pertinent historical information and assessed the remainder of the buildings in Parcels B & G. The CDPH review, provided on November 5, 2015, recommended resurveying 10 percent of the Class 1 SUs in Building 130 and SU 43 in Building 351A. Therefore, SUs 11, 12, 15 and 33 were resurveyed in Building 130, and SU 43 was resurveyed in Building 351A.

TtEC performed this re-scanning to provide another line of evidence supporting the validation of the previous surveys. TtEC re-performed alpha scans in 100 percent of the Class 1 SUs and in 10 percent of the Class 2 SUs within Buildings 146 and 439 using the original scan speeds prescribed in the building-specific TSPs. Likewise, 100 percent of SUs 11, 12, 15 and 33 were resurveyed in Building 130 and SU 43 was resurveyed in Building 351A using the original scan speeds prescribed in the building-specific TSPs. The alpha/beta scans were conducted while implementing strict quality controls (QCs) on the scan speed, as described in Section 4.2 of this Addendum. In addition, the Navy supervised the scan surveys, and provided an additional level of independent QC checks, supplemented by occasional CDPH staff visits. Section 5 of this Addendum describes the findings of the re-survey activities, which support the original FSS findings that no residual contamination remains. In addition, even using worst-case scenarios, the findings are comparable to background radiation, and current conditions are protective of human health.

Scan data is largely qualitative in nature and its purpose is to ensure unacceptable levels of contamination do not exist in areas not measured by static or wipe data. This Addendum provides multiple lines of evidence that demonstrate the buildings in Parcels B and G were adequately remediated, where necessary; the conclusions in the FSS reports remain valid; and the Remedial Action Objectives (RAOs) have been achieved. Therefore, no further action is required and the buildings are suitable for unrestricted release.